REMARKS

The application contains claims 9-18, 20-23, 26-28 and 30-33. All claims stand rejected as either anticipated by or rendered obvious in view of Rappoport, U.S.P. 6,549,987. In view of the foregoing amendments and following remarks, Applicants respectfully request allowance of the application.

CLAIMS 9-13 AND 30 DEFINE OVER THE CITED ART

Applicants respectfully request withdrawal of the rejections to claims 9-13 and 30 because Rappoport fails to teach or suggest all elements of the pending claims. Claim 10 recites, for example:

> determining whether any of the cachelet pointers conflict with any other cachelet pointers,
>
> if a conflict occurs among cachelet pointers, forwarding one of the data requests associated with a conflicting cachelet pointer to the identified cachelet, and
>
> reassigning data requests associated with remaining conflicting cachelet pointers to unused cachelets.

The cited art does not teach or suggest such subject matter. The Office Action suggests that Rappoport's cache "banks" correspond to the cachelets as claimed and that a portion of Rappoport's instruction point (called a "set") corresponds to the cachelet pointers. Applicant respectfully disagrees. Rappoport, in FIG. 3, clearly explains that the set selects an entry within a bank (e.g., entry 311 vs. entry 312); it does not select among banks ($bank_0$ vs. $bank_1$). Rappoport contains no discussion regarding conflicts that may occur among sets or procedures for resolving such conflicts. Accordingly, claim 10 distinguishes over this disclosure.

In addition to his disclosure of sets, Rappoport also describes bank vectors in connection with FIGS. 5 and 6 and Cols. 5:17-6:6. Rappoport clearly explains that when two bank vectors reference the same bank, the bank vector associated with an instruction segment that is first in program flow will be satisfied. The conflicting portion of the second bank vector is deferred. See, for example, Rappoport's FIG. 6 where a portion of bank vector IS2 corresponding to $bank_{N-1}$ is deferred. It is not, for example, reassigned to $bank_1$ which is shown as unused.

With respect to claim 13, Applicants respectfully disagree with the Examiner's assertion that it would have been obvious to permit copies of the same data item to be stored in multiple

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cachelets. Generally, it is considered inefficient to store redundant copies of data in multiple items of a cache. Here, however, since data requests may be reassigned from an intended cachelet to an alternative cachelet, it makes sense. If the Examiner maintains her argument on this point, Applicants respectfully request citation to prior art demonstrating a suggestion to modify traditional cache management policies to permit storage of redundant copies data throughout a cache.

Applicants respectfully suggest that claims 9-13 and 30 define over Rappoport.

CLAIMS 14-15 AND 31-32 DEFINE OVER THE CITED ART.

Rappoport also fails to teach or suggest all elements of claim 14. It reads, in part:

determining whether any of the cachelet pointers conflict with any other cachelet pointers,

forwarding non-conflicting data requests to a cachelet identified by the cachelet pointer,

for the conflicting data requests, forwarding one of the conflicting data requested to the identified cachelet and

reassigning remaining conflicting data requests to unused cachelets.

Again, the cited art does not teach or suggest this subject matter. As noted, Rappoport does not disclose forwarding one conflicting data request to an identified cachelet and reassigning remaining conflicting data requests to unused cachelets. As noted above, there are no conflicts disclosed among Rappoport's sets. Further, the FIG. 6 discussion clearly explains that conflicting portions of bank vectors are deferred, not reassigned. Claims 14-15 and 31-32 define over this art.

CLAIMS 16-18, 26-28 AND 33 DEFINE OVER THE CITED ART.

Applicants request reconsideration of the rejections to claims 16-18, 26-28 and 33 because Rappoport fails to teach or suggest all elements of these claims. Claims 16 and 26, for example, each recite:

determining whether any of the cachelet pointers are valid,

forwarding data requests having valid cachelet pointers to the addressed cachelet, and

assigning remaining data requests to unused cachelets according to a default assignment scheme.

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Rappoport has no disclosure to indicate whether a determination is made whether the disclosed sets or bank vectors are valid. He certainly does not disclose assigning data requests of invalid cachelet pointers to unused cachelets. Accordingly, claims 16-18, 26-28 and 33 define over Rappoport.

CLAIMS 20-21 DEFINE OVER THE ART.

Applicants respectfully request withdrawal of the outstanding rejections to claim 20, which recites:

> a cache provided as a first layer of the cache system, comprising:
> > a plurality of independently addressable cachelets,
> > means for distributing independent loads to each of the cachelets in a single clock cycle; and
> a second layer of cache to receive a load that misses the cachelet to which it was assigned.

Rappoport does not teach or suggest such subject matter. Applicants note that Rappoport's cache structure is disclosed for use as a segment cache where the IP values are generated by a segment predictor 270 (also FIG. 4, 410). Rappoport contains no disclosure to suggest that predicted IP values are referred to other cache systems if they miss in the banks identified by the bank vectors. Given the specific application for which the Rappoport system is designed, segment prediction and retrieval, it is not clear that it would have been obvious to do so. Accordingly, claims 20-21 are allowable over Rappoport.

> Claim 22 recites:
>
> a first layer of cache, comprising a plurality of independently addressable cachelets and means for distributing multiple loads among the cachelets in a single clock cycle, and
> a second layer of cache to receive a load that misses the cachelet to which it was assigned.

As noted, Rappoport has no disclosure to suggest that predicted IP addresses are referred to other cache layers if they miss in the banks identified by the bank vectors. Given the specific application for which the Rappoport system is designed, segment prediction and retrieval, it is not clear that it would have been obvious to do so. Applicants, therefore, respectfully request withdrawal of the rejections to claims 22-23.

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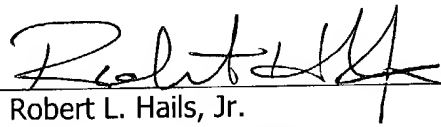
CONCLUSION

All rejections have been overcome. Applicants respectfully request allowance of the application.

The Office is hereby authorized to charge any additional fees or credit any overpayments under 37 C.F.R. 1.16 or 1.17 to Kenyon & Kenyon Deposit Account No. 11-0600. The Examiner is invited to contact the undersigned at (202) 220-4310 to discuss any matter concerning this application.

Respectfully submitted,

Date: 5/17/04

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